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U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY.

Congressional Seed Distribution.

U. S. Department of Agriculture

PLAN OF DISTRIBUTING TOBACCO SEED, AND CULTURAL DIRECTIONS FOR THE DIFFERENT TYPES OF TOBACCO DISTRIBUTED.

For several years the Bureau of Plant Industry and the Bureau of Soils have been cooperating in work looking toward the improvement of tobacco in this country. Under the direction of the Chief of the Bureau of Soils the tobacco seed for the forthcoming Congressional seed distribution was secured from carefully selected and matured plants, in accordance with directions issued by the Department to individual growers. The seed was obtained from the best localities for each variety, and a plan of distribution worked out whereby the varieties suitable for certain districts will be sent there.

The following directions for the distribution and culture of the different types of tobacco have been prepared in the office of the Chief of the Bureau of Soils:

PLAN OF DISTRIBUTING TOBACCO SEED.

The Congressional districts in which tobacco seed will be distributed and the varieties which it is believed are best adapted to these districts are as follows:

ALABAMA:

First district: Florida Sumatra, Florida Cuban, Connecticut Havana.

ARKANSAS:

Second, fifth, and sixth districts: Kentucky White Burley, Virginia Oronoco, Virginia White Stem.

CALIFORNIA:

Sixth and seventh districts: Florida Sumatra, Florida Cuban, Connecticut Havana.

CONNECTICUT:

First district: Florida Sumatra.

Second and fourth districts: Florida Sumatra, Connecticut Havana.

FLORIDA:

First and second districts: Florida Sumatra, Florida Cuban.

GEORGIA:

Second district: Florida Sumatra, Florida Cuban.

ILLINOIS:

Ninth district: Ohio Zimmer Spanish, Connecticut Havana.

Nineteenth, twentieth, and twenty-second districts: Tennessee Improved Yellow Mammoth, Tennessee Oronoco, Tennessee Yellow Pryor, Tennessee Clardy.

INDIANA:

First, third, and fourth districts: Tennessee Oronoco, Tennessee Yellow Pryor, Tennessee Clardy, Kentucky White Burley.

KENTUCKY:

First, second, and third districts: Tennessee Improved Yellow Mammoth, Tennessee Oronoco, Tennessee Yellow Pryor, Tennessee Clardy.

Fourth and fifth districts: Tennessee Improved Yellow Mammoth, Tennessee Oronoco, Tennessee Yellow Pryor, Kentucky White Burley.

Sixth, seventh, and ninth districts: Kentucky White Burley.

Eighth, tenth, and eleventh districts: Tennessee Oronoco, Tennessee Yellow Pryor, Kentucky White Burley.

LOUISIANA:

Second and third districts: Kentucky White Burley, Tennessee Improved Yellow Mammoth, Tennessee Clardy, Florida Cuban.

MARYLAND:

Second and Sixth districts: Ohio Zimmer Spanish, Connecticut Havana:

Fifth district: Maryland Smoking.

MASSACHUSETTS:

First and second districts: Florida Sumatra, Connecticut Havana.

MISSOURI:

First, second, seventh, eighth, ninth, thirteenth, fourteenth, and fifteenth districts: Tennessee Improved Yellow Mammoth, Tennessee Oronoco, Tennessee Yellow Pryor, Kentucky White Burley.

NEW YORK:

Twenty-fourth, twenty-seventh, twenty-eighth, and twenty-ninth districts: Florida Sumatra, Florida Cuban, Connecticut Havana, Ohio Zimmer Spanish.

NORTH CAROLINA:

Second, fourth, fifth, seventh, eighth, and ninth districts: Virginia Oronoco, Virginia Sun Cured, Virginia Cigar Leaf Export, North Carolina Yellow.

OHIO:

First, third, fourth, and seventh districts: Ohio Zimmer Spanish, Connecticut Havana, Florida Cuban.

Sixth district: Ohio Zimmer Spanish, Florida Cuban, Kentucky White Burley.

Tenth district: Ohio Zimmer Spanish, Connecticut Havana, Kentucky White Burley.

Fifteenth, sixteenth, and seventeenth districts: Maryland Smoking, Ohio Zimmer Spanish.

Twentieth district: Maryland Smoking, Ohio Zimmer Spanish, Florida Cuban.

PENNSYLVANIA:

Sixth, seventh, ninth, tenth, fourteenth, fifteenth, sixteenth, seventeenth, and nineteenth districts: Ohio Zimmer Spanish, Connecticut Havana, Florida Cuban.

SOUTH CAROLINA:

First, second, third, fourth, fifth, sixth, and seventh districts: Virginia Oronoco, Virginia White Stem, Virginia Cigar Leaf Export, North Carolina Yellow.

TENNESSEE:

First, second, and third districts: Tennessee Improved Yellow Mammoth, Tennessee Oronoco, Tennessee Yellow Pryor, North Carolina Yellow.

Fourth district: Tennessee Improved Yellow Mammoth, Tennessee Yellow Pryor, Tennessee Clardy, Kentucky White Burley.

Sixth district: Tennessee Improved Yellow Mammoth, Tennessee Oronoco, Tennessee Clardy, Kentucky White Burley.

Fifth, seventh, eighth, ninth, and tenth districts: Tennessee Improved Yellow Mammoth, Tennessee Oronoco, Tennessee Yellow Pryor, Tennessee Clardy.

TEXAS:

First, second, ninth, and tenth districts: Florida Sumatra, Florida Cuban, Ohio Zimmer Spanish.

VIRGINIA:

First, third, fifth, seventh, eighth, and ninth districts: Virginia Oronoco, Virginia Sun Cured, Virginia Cigar Leaf Export, North Carolina Yellow.

Fourth, sixth, and tenth districts: Virginia White Stem, Virginia Sun Cured, Virginia Cigar Leaf Export, North Carolina Yellow.

WEST VIRGINIA:

Third district: Virginia Oronoco, Virginia Sun Cured, North Carolina Yellow, Kentucky White Burley.

Fourth district: Virginia White Stem, Virginia Sun Cured, North Carolina Yellow, Kentucky White Burley.

WISCONSIN:

First, second, and third districts: Florida Sumatra, Florida Cuban, Ohio Zimmer Spanish, Connecticut Havana.

CULTURAL DIRECTIONS FOR THE DIFFERENT TYPES OF TOBACCO.

FLORIDA SUMATRA TOBACCO (NORTHERN DISTRICTS).

A very rich spot should be selected for the seed-bed of Sumatra tobacco grown in the North. In the early fall this plot should be plowed and divided into beds 6 feet wide and any desirable length, surrounded by a wall made of boards 2 inches thick and 12 inches wide, set 2 or 3 inches in the ground. These beds should be highly fertilized with cotton-seed meal and stable manure, well spaded in to a depth of 6 or 8 inches, and the whole covered with leaves, manure, or trash, to keep out the frost during the winter. About April 1 this top dressing should be taken off and the bed again spaded and the soil well pulverized, after which another application of cotton-seed meal or cotton-hull ash should be given. This should be raked in and the surface made smooth and loose, making the bed ready to receive the seed. About five days before the time of sowing, the seed should be put to sprout in apple-tree punk, made soft with warm water. This should be put in a fruit jar and kept in a warm room. It will be observed that the seed will be slower in sprouting than domestic tobacco seed, and it will not sprout uniformly; that is, all the seed will not sprout at the same time. It is best to wait until nearly all the seed is sprouted before sowing. Mix the seed with bran or cotton-seed meal and sow at the rate of

2 tablespoonfuls of the seed to 100 square yards, after which a heavy roller should be drawn over the bed, thus packing the seed well into the soil, making the surface smooth and preventing the rapid drying out of the soil which would otherwise take place. If the ground is dry it should be watered immediately after sowing the seed; and this should be continued from time to time as the soil may require. In the absence of rain after the plants are up, watering should still be practiced.

There are many enemies of the seed bed in the way of insects, so a careful watch is necessary. As soon as there is any appearance of flea-beetles or horn worms, the bed should be sprayed with paris green mixed with water at the rate of 1 tablespoonful to 2 gallons of water. In order to keep down the insects, the bed should be sprayed at least three times a week. It is safer to protect these early beds with canvas stretched on frames made over and around the beds.

When the plants are drawn for transplanting, great care should be taken to get as much root as possible. Each person doing this work should be provided with a bucket of water, and as soon as the plants are drawn the roots should be washed to remove all soil that may have stuck to them. The plants are then placed in a basket, roots down, and are immediately set out. The washing of the roots is not generally practiced, but it has been found that plants live and grow better when the roots are clean. After each drawing of the plants from the bed, the soil should be watered, in order to close up the places from which the plants have been taken.

The soil selected for this tobacco should be a light gray sandy loam or sand with a sand or clay subsoil, provided the clay is not closer to the surface than 12 or 15 inches. In order to produce a light, thin wrapper, the sandy soil must be very rich and a large quantity of fertilizer is necessary. The land should be broken up in November or December, allowing the plow to cut from 4 to 6 inches deep, according to the nature of the soil and the quantity of fertilizer used. If a large quantity of fertilizer is used, such as cotton-seed meal and stable or barn manure, it should be thrown broadcast over the field and plowed in. This should be done about six weeks before the time of setting out the plants. Often a second application of fertilizer will be needed in order to give a continuous, rapid growth.

The distance between the rows should be 4 feet and between the plants 12 inches. As it is always desirable to get a uniform growth, great care should be exercised to have each plant live. If the ground is moist and showers frequent, watering the plants is unnecessary; but if the ground is dry, they should be watered immediately after setting and, if possible, each day

thereafter as long as the plants may require it. After setting the plants they should not be disturbed for at least six days. If the soil becomes packed and hard, a furrow should be run on each side of the row, using a small, straight plow and letting it well down. This should be followed immediately by two sweep furrows, which will put the plants on a smooth ridge. The hoe is then used, carefully stirring the soil about the plants. Thereafter cultivation should be frequent and shallow.

As the principal value of Sumatra is its wrapping leaves, great care should be exercised to preserve the soundness of the leaf. In topping the Sumatra tobacco, only the bud should be taken out and all the leaves allowed to grow. If the land is exceedingly rich it is found best not to top at all, but to allow the plant to go to bloom. It has been found by experience that Sumatra tobacco should be harvested at an early stage of ripeness, as the leaf will cure riper and be more elastic; that is, it will have more life. It is usual to take 4 or 6 leaves at each priming, thus going over the field four or five times before the whole crop is harvested.

As soon as the first leaves at the bottom of the stalk begin to ripen, harvesting is begun by plucking off, or priming, the first four leaves at the bottom and transporting them to the curing shed in baskets. There they are strung on strings attached to laths, from 30 to 40 leaves being allowed to a lath. The leaves are placed back to back and face to face, so as to prevent cupping or folding over each other. The laths are then hung in tiers in the barn, where they remain until the leaves are cured.

When the tobacco is primed from the stalk, it should not take more than two weeks to cure; when it is hung on the stalks, three to four weeks are necessary. The manipulation of the barn, or curing shed, is governed entirely by the condition of the weather and the nature of the tobacco; so no fixed rules can be given. However, in a general way, it can be said that if a barn is filled with green tobacco and the weather is hot and dry, the ventilators should be tightly closed for about three days, by which time the tobacco should be quite yellow. The barn should then be opened at night and kept closed during the day. This is done to prevent rapid curing, which destroys the life of the leaf and gives uneven colors. If there are frequent showers and but little sunshine, the barn should be kept closed and fires started in small charcoal heaters distributed throughout the barn. These fires should be continued as long as it is necessary to keep the tobacco in proper condition. Where charcoal heaters are not available, wood which has as little odor and as little smoke as

possible should be used. It is very important to dry out the barn without giving the tobacco any foreign odors. To obtain the best results, the tobacco should become fairly moist and fairly dried out once in every twenty-four hours.

When the midribs are thoroughly cured the leaves are ready to be taken to the packing house. To get the tobacco in condition to handle, all the ventilators should be left open for one night, opening them about 6 o'clock in the evening. The next morning the tobacco should be in what is called "good case;" that is, it will have taken up sufficient moisture to become soft and pliable. The barn is then tightly closed in order to retain the moisture and the leaves are taken from the laths. The bottom, middle, and top leaves should be kept separate in the barn. After the tobacco has been taken down and packed it should be taken at once to the warehouse for fermentation and baling.

FLORIDA SUMATRA TOBACCO (SOUTHERN DISTRICTS).

The land for the seed bed should be preferably fresh, rich hammock, having a light gray soil, moist but not wet. Dry, thirsty land should be avoided. In selecting the seed bed it is best to secure land sloping from north to south, protected on the north by forests and open on the south to let in the midday sun. The time for sowing the seed is from March 1 to April 15. Plants should be ready for transplanting about sixty days after sowing.

One week before sowing the seed the bed should be thoroughly cleaned and all straw and leaves carefully raked off, after which the ground should be burned. This is done to destroy all grass and weed seeds or roots which might otherwise come up and choke the tobacco plants. The burning is done in the following manner:

After raking the surface well, skids are laid 4 feet apart, running the full length of the plat to be sown. A pile of wood is then laid across the skids, running the width of the bed. The fire is started, and as fast as the ground is thoroughly burned and covered with ashes the fire and wood are drawn along the skids, wood being continuously added. After the entire bed is burned the ground is again raked to remove the coals, letting the ashes remain. The soil is then spaded to a depth of 4 inches, all the roots and tufts being carefully taken out. If the soil needs fertilizing after the spading is completed (the seed bed should be very rich in order to give thrifty, healthy plants), such quantity of fertilizer as may be necessary is thrown broadcast over the surface. Any complete guano may be used. The bed is again

raked with an iron-toothed rake to mix the fertilizer well with the soil and to have the surface smooth and loose.

The bed should be divided into "lands" about 4 feet wide, leaving narrow walks between. Each land should be measured to ascertain how many square feet it contains, and enough seed should be mixed with ashes to sow one land at a time, at the rate of 2 tablespoonfuls of the seeds to 100 square yards. This is the usual allowance for 1 acre to be planted. After the sowing is completed the bed should be rolled with a heavy roller. If the ground is dry it should be watered immediately after the sowing of the seed, and this should be continued from time to time as the soil may require. In the absence of rain, after the plants are up, watering should still be practiced.

The manner of transplanting, the kind of soil to be selected, the methods of field culture, and the manipulation of harvesting and curing are the same in both northern and southern districts.

FLORIDA CUBAN TOBACCO.

The seed bed for this variety of tobacco should be the same as that for the Sumatra in the South, and should be cleared, burned, and prepared in the same manner. The time for sowing the seed is from January 15 to March 1, and sometimes as late as April. January and February sowings should give plants large enough for transplanting within sixty or seventy days; those of March and April within forty to sixty days. Transplanting is done in the same way as with the Sumatra, except that the plants are set 14 inches apart. The same rules as to watering and early cultivation apply.

When the plants begin to button, cultivation should stop. Early or low topping is not desirable, as it throws too much growth into the leaves, making them large and coarse. There should be from 14 to 16 leaves to the stalk after the plant is topped. At this point suckers will start at each leaf, but these must be broken off at least twice a week. The battle with the worms, which was begun in the seed-bed, does not end until the tobacco is harvested. A careful watch should be maintained to keep all insects off the tobacco.

This variety should be harvested and hung in the curing shed in the same manner as the Sumatra. If it gives promise of being "wrapper"—that is, if it is light green, very sound in leaf, and of desirable size—it should be primed at an early stage of ripeness. If, however, appearances prove that it will be "filler" tobacco, it should be allowed to get thoroughly ripe.

If the soil is rich and the season propitious, a second profitable crop can be produced from the suckers in southern localities. As soon as the original crop is topped, suckers will sprout from each leaf. These, of course, should be broken off as soon as they appear, otherwise they will check the growth of the leaf. When all the leaves have been primed from the original stalk, except the four or six leaves at the top, two suckers should be allowed to grow from the bottom of the stalk. These two suckers will be well started by the time the top leaves of the original stalk are ripe. The stalk should then be cut just above where the suckers sprout and cultivation should begin at once, the soil being brought up around the old stubble. The suckers should not be allowed to have more than six leaves each. The growth of these will be rapid and they will mature quickly. When ripe the leaves should not be primed, but the stalk should be cut. It is often the case, where the seasons are favorable, that the suckers will make a very fine quality for filler purposes.

The same method of curing is used for both Cuban and Sumatra tobacco.

CONNECTICUT HAVANA TOBACCO.

The seed-bed for this type should be prepared by plowing it in the fall and sowing on a good supply of cotton-seed meal or some other good fertilizer. In the spring, as soon as the frost is out of the ground, the bed should be again plowed or harrowed with a cutaway harrow and a small quantity of phosphate thrown broadcast upon it. The bed should again be harrowed and well raked. The seed should be sown about the middle of April. It is first sprouted by being put in apple-tree punk or moist sand and kept in a warm room. Plants should be ready for setting in the field within six or seven weeks from sowing. The rows should be 3 feet 4 inches apart, and the distance between the plants from 16 to 18 inches. The tobacco is topped so as to allow from 16 to 18 leaves to the stalk. The average yield per acre is from 1,800 to 2,000 pounds.

The crop is harvested by cutting the stalks and letting them remain in the field until they wilt. Then they are hauled to the barn, where they are speared on laths, from 8 to 12 stalks being allowed to a lath. These are hung up in the barn 8 inches apart.

This tobacco is cured as follows: While the leaves are green the barn should be closed at night and during damp weather and opened during the day; but when the tobacco is half cured, the ventilation should be reversed and the barn closed

during the day and opened at night and in damp weather. The tobacco should be fairly dried out and fairly moistened once every twenty-four hours. The curing is completed when the midribs of the leaves are thoroughly dry.

The soil best adapted to the Connecticut Havana variety is a light sandy loam.

OHIO ZIMMER SPANISH TOBACCO.

The seed-bed for this type, which is prepared in essentially the same way as that for the Connecticut Havana, should be sown from March 1 to April 15, and the plants ought to be ready for transplanting within eight or ten weeks. The rows in the field should be 3 feet apart and the plants 22 inches from each other in the drill. The tobacco should be topped when the seed-bud appears, leaving about 16 leaves to the plant. The average yield is 1,000 pounds per acre.

The Zimmer Spanish tobacco is harvested and cured in the manner described for the Connecticut Havana leaf.

The soil best adapted to the Zimmer Spanish variety is sugar-tree red uplands or "Miami clay loam" of the Soil Survey.

NORTH CAROLINA YELLOW TOBACCO.

The seed-bed for this tobacco should, if possible, be selected on a hillside sloping from west to east or from north to south, so as to get all the morning sun and be sheltered from the cold west and north winds. The soil of the seed bed should be as rich alluvial virgin soil as can be had. The bed should be well burned and all the grubs taken out. A little 2-inch bull-tongue plow should be used to break up the soil in two ways so as to tear out all the roots, which should be raked out and the bed made smooth. To 100 square yards put on 100 pounds of high-grade fertilizer and 2 barrels of well-rotted stable manure about 1 inch deep. Plow this in with the same bull-tongue plow and rake the bed carefully until the surface is level. After the sowing is completed a heavy roller should be drawn over the bed.

The seed should be sown from the first to the middle of January and not later than the first of February. This will give plants ready for transplanting by April 5. Harvesting should begin from sixty to seventy days after transplanting. The rows should be $3\frac{1}{2}$ feet and the plants $2\frac{1}{2}$ feet apart. The average yield is 1,000 pounds per acre.

Harvesting may be done by priming the leaves or by cutting the entire stalk. In priming the tobacco the leaves are stripped from the stalk in the field as they ripen, and are

strung on strings attached to laths, about 30 leaves being allowed to each lath. These are then hung in the barn to cure. If this method is practiced, from 14 to 16 leaves may be matured on each plant. If it is desired to cure the tobacco on the stalk, the first four bottom leaves should be stripped off and the tobacco topped, so as to leave from 10 to 12 leaves on the stalk. In cutting the tobacco the stalk should be split from the top down to within a few inches from the last set of leaves, and then the stalk should be cut just below these leaves. The plants are hung on the lath by opening the split, 6 to 8 plants being allowed to each lath. These are carried to the barn, where they are hung in tiers.

This tobacco is cured as follows: The barn should be heated to 100° and allowed to remain at that temperature until the tobacco colors well. The temperature should then be gradually raised to 110° and retained until the desired colors are obtained. At 120° the tips of the leaves on the first tier should show signs of drying, and at 125° all the leaves on the first and second tiers should be dry. At this point the barn should be gradually heated to 145°, a pause of several hours being made at 140°. By this time all the leaves in the barn should be dry, but in order to kill the stem the temperature should be raised 5 more degrees. Then a rapid rise should be made until 175° is reached, at which temperature the tobacco should be thoroughly cured.

The soil best adapted to this type of tobacco is a light-gray sandy loam.

MARYLAND SMOKING TOBACCO.

Prepare the seed-bed for this variety as for Cuban tobacco, sowing the seed from February 1 to March 20. The other operations in the production of the two types are the same up to transplanting. The Maryland smoking tobacco is transplanted from May 15 to June 1, in rows 3 feet apart, the plants being given a distance of 20 to 24 inches from each other in the drill. The plants should be topped so as to leave about 16 leaves to the stalk. The average yield is 1,000 pounds to the acre.

In harvesting this tobacco, the plants are cut and four rows are thrown together. They are then speared on sticks, from 6 to 8 plants being allowed to the stick. Care should be taken that the plants are not crowded too closely on the sticks or in the barn. The sticks are hung about 8 inches apart in the barn, and after the tobacco is half cured they can be put closer together if necessary, say about 4 inches apart. It generally takes about two months to cure this tobacco sufficiently to strip.

TENNESSEE TYPES (YELLOW PRYOR, ORONOCO, CLARDY, IMPROVED YELLOW MAMMOTH).

The soil best suited for the seed-bed of these types is rich, friable, black virgin loam or sandy soil with a southern exposure. The time for sowing the seed is from March 1 to April 15. The preparation and management of the seed-bed are the same as for Cuban tobacco. The plants should be ready for transplanting about May 10. The rows in the field should be placed $3\frac{1}{2}$ feet apart each way. Ten days are necessary for the plants to establish themselves in the soil, and at the end of that time cultivation with the plow should begin; afterwards the hoe should be used. The field should be worked first one way and then the other.

About six or eight weeks after transplanting the plants ought to be ready for topping. This is done by pinching off the bud, leaving 8 or 10 leaves to the stalk, not including the leaves at a distance of 6 inches from the ground. All suckers should be kept off the plant.

The tobacco should be allowed to get thoroughly ripe before harvesting, which is done in the following manner: Split the stalk down from the top to within a few inches of the last set of leaves. Cut two rows, laying the plants right and left, and when wilted hang the plants on laths, from 8 to 12 stalks to a lath. These should be laid in small piles at a sufficient distance apart to allow between them the passage of a wagon, on which the laths are loaded and carried to the curing shed. Care should be taken not to cut the plants after a rain or in the hot sun.

This tobacco is cured as follows: After it has been hanging in the barn four or five days, slow fires should be kindled under it, and at the expiration of twenty-four hours the heat should be gradually increased until 150° is reached. The leafy part and one half the stem should be cured in three days and nights. After this the tobacco should be allowed to come in "order" (soft and pliable) and be dried out by fires. This alternation of getting the tobacco moist and drying it out should be kept up for three or four weeks. This tobacco is cured by open wood fires, made by placing two logs side by side and building a fire between them. Open-fire heat is preferred for all tobacco to be sent abroad.

The soil best adapted to these types is a strong, rich loam with a deep reddish subsoil.

KENTUCKY WHITE BURLEY TOBACCO.

The seed-bed for this variety of tobacco is selected and prepared as in the case of the Cuban type, the only variation

being in the time of seeding, which for the Burley is limited to February.

As soon as the plants are well rooted, cultivation should begin, and this should be continued during the growing season, so as not to allow the soil to become crusty and hard. The plants should not be permitted to bloom, but should be topped as soon as the button appears, leaving from 14 to 16 leaves to the stalk.

The tobacco should be allowed to become thoroughly ripe before harvesting. It is harvested in much the same way as the Yellow Pryor and other Tennessee types, but no fire is used in its curing, which is accomplished by simply hanging in the barn.

VIRGINIA TYPES (WHITE STEM OR ONE-SUCKER, ORONOCO, SUN CURED, CIGAR LEAF EXPORT).

The situation and kind of soil best suited for the seed-bed, and the methods of its preparation and management, are the same for all these types as for the Cuban tobacco, but there are some differences in the time of sowing the seed and in the manner of cultivating, harvesting, and curing the different varieties.

White Stem or One-Sucker Tobacco.—Seed should be planted from January to March. Plants should be set in the field in rows 4 feet apart and given a distance of 3 feet in the drill. The plants should be topped, so as to allow from 8 to 12 leaves to the stalk. The average yield is 1,500 pounds per acre.

About fourteen weeks elapse between the time of transplanting and of harvesting, as this tobacco should be thoroughly ripe when cut. The crop is cut and harvested in the following manner: The stalk is split from the top to the last set of leaves, and severed about 2 inches below the split, or just below the last set of leaves. Hang the stalks on laths by opening the split, 7 or 8 plants being sufficient for one lath.

The curing is done as follows: Put the tobacco in the barn as quickly as possible—before it begins to turn yellow. After the barn is filled, build a fire of dry oak or other hard wood and make it hot enough to scald the leaves. About five hours of firing at a temperature of from 150° to 155° will usually scald the leaf. Then diminish the heat and keep a slow fire in the barn until the stalks are cured. Forty-eight hours are required to perfect this cure.

The soil adapted to this type of tobacco is a sandy loam with a red clay subsoil. Without such subsoil the tobacco will have a dull, slaty color, while with it the tobacco will be rich, glossy, and much tougher.

Oronoco Tobacco.—The time for sowing the seed is from February 1 to April 15. Plants should be ready for transplanting sixty days after sowing, if the season is favorable.

In the field the distance between the rows should be $3\frac{1}{2}$ feet and between the plants in the drill 3 feet. The plants should be topped so as to leave from 8 to 10 leaves on the stalk. Fifteen hundred pounds per acre is considered a good crop.

The tobacco is cut in the same way as the White Stem variety. When the plants are wilted, one man walks between the rows, holding the lath on which the plants are to be hung. The hanging is done by two other men, who walk to the right and left of the one carrying the lath. When the laths are full they are carefully laid on the ground, two or three together. They are then loaded on a wagon and carried to the curing shed, where they are hung in tiers. From 6 to 8 stalks are allowed to a lath.

This type of tobacco is usually cured with a small fire in the barn. Slow fires should be started and kept burning until the leaf is well yellowed; then the temperature should be increased until the leaf is cured and the stalk is brown. After this it is only necessary to have enough fire during the early morning to dry out the leaf until the tobacco is thoroughly cured. From twenty to thirty days are required to complete this curing.

A soil with a stiff clay subsoil is adapted to the growing of this tobacco.

Sun Cured Tobacco.—The time of sowing the seed is from February 1 to April 15. Plants should be ready for transplanting in about ninety days after sowing. The rows should be 3 feet 3 inches apart and the plants in the drill 2 feet. The plants are topped so as to leave 10 to 12 leaves to the stalk. The average yield is 1,000 pounds per acre. The crop is cut and harvested in the same manner as the Oronoco type.

Curing is effected as follows: When the tobacco is taken to the curing shed it is crowded together and allowed to remain until it is quite yellow. Then the barn should be opened or the tobacco should be hung on racks in the sun until cured. Sun and dew are preferred for curing sweet-flavored tobacco. From five to eight weeks are required to effect this cure.

The soil best adapted to this type of tobacco is a medium, sandy soil that is high enough to give good natural drainage.

Cigar Leaf Export Tobacco.—Seed should be sown from January 1 to March 15. Plants should be set in rows $3\frac{1}{2}$ feet apart and given a distance of 3 feet in the drill. The plants are topped so as to leave 8 or 10 leaves on the stalk. The average yield is from 1,200 to 1,500 pounds per acre. The method of harvesting is the same as for the previous types.

The tobacco is cured in the following manner: It is hung in the barn until it yellows uniformly; then a slow fire is started and continued until the leaf is cured. From three to five weeks are required for the curing of this type.

The soil best adapted to this tobacco is a gray loam with a red clay subsoil.

COMMERCIAL USES OF THE DIFFERENT VARIETIES OF TOBACCO.

Florida Sumatra tobacco is used almost exclusively as a wrapper for domestic cigars. In the southern districts the thick or broken leaves may be cured for filler purposes.

Florida Cuban is essentially a filler tobacco for domestic cigars, although much desirable wrapper is produced from this type in the southern districts.

Connecticut Havana is grown entirely for wrapper and binder purposes for domestic cigars.

Ohio Zimmer Spanish is used exclusively for filler for domestic cigars.

North Carolina Yellow is used for pipe smoking, chewing, and cigarettes. The most valuable leaves are those used for wrappers for plug tobacco and for all-tobacco cigarettes. This type was formerly grown almost wholly for the domestic market, but now a considerable export trade is maintained with England, Japan, and other countries.

Maryland Smoking tobacco was formerly used to a large extent for domestic pipe smoking, but the principal market is in two or three of the "Regie" countries, France taking the bulk of the crop.

The Tennessee types are principally exported.

The Virginia types are used to a very large extent in the domestic markets for smoking and chewing tobaccos and snuff. Considerable quantities, however, are exported, especially the heavier and cheaper grades.

Kentucky White Burley is used for pipe smoking, chewing, and cigarettes. The bulk of the crop is consumed in our domestic markets, but considerable quantities are exported.

RECENT PUBLICATIONS OF THE DEPARTMENT ON TOBACCO.

The following publications are available for general distribution:

Farmers' Bulletin No. 60.—Methods of Curing Tobacco.

Farmers' Bulletin No. 82.—Culture of Tobacco.

Farmers' Bulletin No. 83.—Tobacco Soils.

